

a2 6. (Amended) Floor covering as claimed in [Claims 4 and 5] Claim 4, wherein the copolymers (a) and (b) are copolymers of ethylene and octene.

7. (Amended) Floor covering as claimed in [any one of Claims 1 to 6] Claim 1, wherein the grafted copolymer is a grafted copolymer based on a HD polyethylene.

a3 10. (Amended) Floor covering as claimed in [any one of Claims 1 to 9] Claim 1, wherein the proportion of grafted copolymer in relation to the total weight of the polymeric binder is 5% to 25% by weight.

11. (Amended) Floor covering as claimed in [any one of Claims 1 to 10] Claim 1, wherein the elastomer is cross-linked with at least one cross-linking agent based on organic peroxides and possibly one or more co-cross-linking agents.

a4 13. (Amended) Floor covering as claimed in [any one of Claims 1 to 12] Claim 1, which further contains fillers and/or pigments as well as possibly processing aids, antioxidants, static eliminators, UV stabilizers and slip agents.

15. (Amended) Floor covering as claimed in [any one of Claims 1 to 14] Claim 1, having a variable color pattern and a homogeneous design.

a5 16. (Amended) Process for producing a floor covering as claimed in [any one of Claims 1 to 15] Claim 1, comprising the provision of a substrate in the form of a strip and the application of the elastomers defined in [Claims 1 to 14] Claim 1 to one side of the substrate.

17. (Amended) Process for producing a floor covering as claimed in [any one of Claims 1 to 15] Claim 1 comprising the following steps:

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- (a) compounding of the polymeric material defined in [Claims 1 to 14] Claim 1 to produce a ground or granulate material;
 - (b) wetting of particles with a solution containing at least one organic peroxide free from aromatic hydrocarbons and possibly one or several co-cross-linking agents and possibly process oil, wherein the particles contain the above-defined polymers, which form the polymeric binder of the floor covering according to the invention, either cross-linked or partially cross-linked in the form of a ground or granulate stock,
 - (c) heating of the particles to a temperature at which the peroxide has sufficiently long stability, wherein the particles are subsequently precompacted and shaped into a flat product, and
 - (d) pressing of the flat product thus obtained in a suitable apparatus at a temperature at which the half-life of the peroxide is reduced such that cross-linking initiated by the peroxide simultaneously occurs to obtain a flat end product.

Please add new claims 19-24 as follows:

19. Process as claimed in Claim 17, wherein the mass in step (a) is compounded, in addition, with a chemical expanding agent.

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20. Process as claimed in Claim 19, wherein, after cross-linking under pressure in step (d), foaming of the material is effected by releasing the pressure at a further increased temperature.

21. Process as claimed in Claim 19, wherein the chemical expanding agent is a sulfohydrazide or azodicarbonamide or a combination thereof.

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22. Process as claimed in Claim 17, comprising the following steps:
- (a) compounding of the polymeric material defined in Claim 1 together with additives, fillers, peroxide, co-cross-linking agents and a chemical expanding agent;
 - (b) partial cross-linking and foaming of the mixture in an extruder;
 - (c) discharging of the foam through an extruder nozzle into a water bath and granulating of the slab thus formed; and
 - (d) further grinding and drying of the granulate, which is then wetted with a mixture of liquid peroxide, co-cross-linking agents and mineral oil, wherein the ground stock is subsequently distributed over a release paper and covered with an anti-adhesive paper and is fed into a heated press, with the temperature and pressure adjusted such that the particle bed along the heating surfaces becomes plastic and melts to form a closed surface and at the same time the temperature initiates the decomposition of the peroxide, whereby the outer layers simultaneously cross-link, so that a floor covering with integral structure is obtained.

23. Process as claimed in Claim 19, wherein the back of the covering is ground for sizing in a post-treatment step.

24. Process as claimed in Claim 17, wherein the structure of the cross-linked material is revealed after exposing the surface by grinding and/or splitting.